

RUI CHEN

Curriculum Vitae ◇ Personal Website: <http://ruichen.pub/> ◇ richen@umich.edu · ruichen2@andrew.cmu.edu

EDUCATION

- M.S. in Electrical and Computer Engineering / Robotics, CV** Sep. 2017 - Dec. 2018
Rackham Graduate School. CGPA: 3.96/4.00
The University of Michigan, Ann Arbor.
- B.S. in Computer Engineering** Sep. 2013 - May 2017
Joint-Institute, College of Engineering. Dual-Degree Program. CGPA: 3.75/4.00
Shanghai Jiao Tong University, Shanghai, China - University of Michigan, Ann Arbor, U.S.

SKILLS AND INTERESTS

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| Interests | Inverse Reinforcement Learning, Meta Learning, Reinforcement Learning, Computer Vision, Deep Learning, Probabilistic Robotics. |
| Application Skills | Human-Robot Interaction, Autonomous Vehicles, Manufacturing. PCL, Cuda, Polysync, ROS, Tensorflow, RTOS, Embedded Systems, Electronics Design, Computer Networks, Distributed/Parallel Computing. |
| Software | Unreal Engine 4 (Editor & C++ Programming), Blender, AutoCAD, Sketchup. |
| Languages | C/C++, Python, Matlab, Arduino. |

PUBLICATION

- X. Chen, **R. Chen**, Z. Sui, Z. Ye, Y. Liu, R. I. Bahar, and O.C.Jenkins, “GRIP: generative robust inference and perception for semantic robot manipulation in adversarial environments”, in *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2019, Available: <https://arxiv.org/abs/1903.08352>
- R. Chen**, W. Wang, Z. Zhao, and D. Zhao, “Active Learning for Risk-Sensitive Inverse Reinforcement Learning”, *IEEE Robotics and Automation Letters (RA-L) (In Review)*, 2019, Available: <https://arxiv.org/abs/1909.07843>
- R. Chen**, M. Arief, and D. Zhao, “How to Evaluate Self-Driving Testing Ground? A Quantitative Approach”, *IEEE Transactions on Intelligent Transportation Systems (T-ITS) (In Review)*, 2019.

RESEARCH

- Meta Imitation Learning for Human-Robot Collaboration** Sep 2019 - Present
Intelligent Control Lab, Robotics Institute *Carnegie Mellon University, Pittsburgh*
- Meta-learned one-shot imitation model for fast adaptation to unseen human-robot collaboration tasks.
- Active Learning for Risk-Sensitive Inverse Reinforcement Learning** June 2019 - Sep 2019
Safe AI Lab, Mechanical Engineering *Carnegie Mellon University, Pittsburgh*
- Active demonstration querying for faster human risk envelope approximation via disturbance planning.
 - Experimental verification in single-step and multi-step setting with simulated car-following task in Carla.
- Generative Robust Inference and Perception in Adversarial Environments** Sep 2018 - March 2019
Lab 4Progress, Department of EECS *University of Michigan, Ann Arbor*
- First stage Pyramid CNN provides prior knowledge on object labels, locations and aspect ratios.
 - Second stage particle filter searches in 6D space with feature-based likelihood function.
- Evaluation of CAV testing grounds via generative sample-based optimization** April 2019 - Sep 2019
Safe AI Lab, Mechanical Engineering *Carnegie Mellon University, Pittsburgh*
- Evaluating testing capability based on utility of V2V interaction scenarios within testing ground road map.
 - Estimating spatial compatibility of traffic encounter primitives via iterated likelihood weighting.

PROJECTS

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| Automatic driving scenario generator from OSM data in Carla | April 2018 - Aug. 2018 |
| · An automatic map and route generator from OSM data for testing self-driving algorithms in Carla. | |
| Lincoln MKZ on-track testing with simulated traffic scenarios | Jan. 2018 - May 2018 |
| <i>Mcity</i> | <i>Ann Arbor</i> |
| · Fully automated and remotely controllable testing, result reporting, parameter updating, and position reset cycle. | |
| · Virtual dynamic road users challenging real autonomous vehicle in Mcity. | |
| Surface normal prediction from single color image | March 2018 - April 2018 |
| · Surface normal estimation from single color image using stacked hourglass model. | |
| Particle filter SLAM on mobile bot with RPLIDAR | November 2017 - Dec. 2017 |
| · Sensor fusing, pose interpolation, particle filtering, occupancy grid. | |
| Autonomous Self-balancing robot | October 2017 - November 2017 |
| · Path planning and following using Potential Field Method with Optitrack motion capture system. | |
| RGBD-based object manipulation using a 6-DOF robotic arm | Sep. 2017 - October 2017 |
| · 6D block pose estimation and color classification followed by block stacking and organizing. | |

POSITIONS OF RESPONSIBILITY

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| Research Assistant @Intelligent Control Lab, Robotics Institute, CMU | Sep. 2019 - Present |
| Research Assistant @Safe AI Lab, Mechanical Engineering, CMU | Feb. 2019 - Sep. 2019 |
| Research Assistant @Lab 4Progress, The University of Michigan, Ann Arbor | Sep. 2018 - Feb. 2019 |
| Research Assistant @Mcity, Ann Arbor | Jan. 2018 - June 2018 |
| Software Intern @NVIDIA, San Jose | May 2016 - July 2016 |
| Teaching & Lab Assistant @UM-SJTU, Shanghai Jiao Tong University, Shanghai | March 2015 - July 2016 |

AWARDS AND HONORS

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| University Honors, University of Michigan | Dec. 2015, April 2016, April 2017 |
| Dean's List, University of Michigan | Dec. 2015, April 2016, Dec. 2016, April 2017 |
| Excellent assistant class advisor, Shanghai Jiao Tong University | Aug. 2015 |
| Academic Excellence Scholarship, Shanghai Jiao Tong University | Dec. 2014 |
| Dean's List, Shanghai Jiao Tong University | April 2013, April 2014 |